

REMARKS

A. Background

Claims 1-10 were pending in the application at the time of the Office Action with claims 6-10 being withdrawn due to an earlier restriction requirement. Claims 1-3 and 5 were rejected as being anticipated by cited art. Claim 4 was objected to as being dependent upon a rejected base claim. By this response applicant has amended claim 1 and added claims 11-16. As such, claims 1-5 and 11-16 are presented for the Examiner's consideration in light of the following remarks.

B. Proposed Amendments

Applicant has herein amended the title of the application. Applicant has amended claim 1 to address an informality. Applicant has added new claims 11-16. Support for the new claims can be found at least at Figures 1 and 6 and the corresponding discussion in the specification.

In view of the foregoing, Applicant respectfully submits that the amendments to the claims do not introduce new matter and entry thereof is respectfully requested.

C. Rejection on the Merits

1. Claim Objections

Page 2 of the Office Action objects to claims 1-4 due to an informality. Specifically, the Office Action asserts that the claims do not include "closed or open language such as 'consisting of' or 'comprising'." In light of amendments made herein to the claims, Applicant submits that the objection has been overcome and should be withdrawn.

2. Anticipation Rejections

Applicant respectfully notes that a claim is anticipated under 35 U.S.C. § 102(a), (b), or (e) only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. Further, the identical invention must be shown in as complete detail as is contained in the claim. Finally, the elements must be arranged as required by the claim. *MPEP* § 2131.

Pages 2 and 3 of the Office Action reject claims 1 and 2 under 35 USC § 102(b) as being anticipated by U.S. Patent No. 4,811,353 to Noda et al. (“*Noda*”). The Office Action cites Figure 5 and col. 1, lines 50-68 of *Noda* in support of the rejection. Pages 3 and 4 of the Office Action reject claims 1-3 and 5 under 35 USC § 102(b) as being anticipated by U.S. Patent No. 6,122,414 to Shimizu (“*Shimizu*”). The Office Action cites Figure 7B and col. 5, lines 14-25 of *Shimizu* in support of the rejection. Applicant respectfully traverses these rejections.

As shown in Figure 5, *Noda* discloses a PIN-type semiconductor optical modulator in which InP cladding layers 4 and 8 are formed on either side of an optical waveguide layer 3. Although *Noda* discloses that the InP cladding layer 8 is continuously varied, Applicant can find no teaching or suggestion within the cited portion of *Noda*, or any other portion of *Noda*, that either of cladding layers 4 or 8 are “semi-insulating.”

As shown in Figure 7B, *Shimizu* discloses a Mach-Zehnder modulator in which an n-type InP cladding layer 2-2a and a p-type InP cladding layer 4-2 are formed on either side of an optical waveguide layer 3-2, over a substrate 1. Although *Shimizu* discloses that the substrate 1 is semi-insulating, Applicant can find no teaching or suggestion within the cited portion of *Shimizu*, or any other portion of *Shimizu*, that either of cladding layers 2-2a or 4-2 are “semi-insulating.”

In view of the foregoing, Applicant submits that neither *Noda* nor *Shimizu* teach or suggest “a layered structure in which a semi-insulating type cladding layer, a semiconductor optical waveguide core layer, and a semi-insulating type cladding layer are sequentially laminated on a

substrate,” as recited in claim 1. Accordingly, Applicant respectfully requests that the anticipation rejections of claim 1 be withdrawn.

Claims 2, 3 and 5 depend from claim 1 and thus incorporate the limitations thereof. As such, Applicant submits that claims 2, 3 and 5 are distinguished over the cited references for at least the same reasons as discussed above with regard to claim 1. Accordingly, Applicant respectfully requests that the rejections of claims 2, 3 and 5 also be withdrawn.

3. Allowable Subject Matter

Page 4 of the Office Action objects to claim 4 as being dependent upon a rejected base claim, but states that claim 4 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In view of the discussion set forth herein, Applicant declines to rewrite claim 4 in independent form at this time.

No other rejections or objections are set forth in the Office Action.

D. New Claims

Applicant submits that each of new claims 11-16 are distinguished over the cited art of record. For example, claim 11 recites “a first semi-insulating cladding layer,” and “a second semi-insulating cladding layer.” As discussed above with regard to claim 1, neither *Noda* nor *Shimizu* teach or suggest cladding layers that are semi-insulating. Claims 12-16 depend from independent claim 11 and thus incorporate the limitations thereof. As such, Applicant submits that claims 12-16 are distinguished over the cited art for at least the same reasons discussed above regarding claim 11.

D. Conclusion

Applicant notes that this response does not discuss every reason why the claims of the present application are distinguished over the cited art. Most notably, applicant submits that many if not all of the dependent claims are independently distinguishable over the cited art. Applicant has merely submitted those arguments which it considers sufficient to clearly distinguish the claims over the cited art.

In view of the foregoing, applicant respectfully requests the Examiner's reconsideration and allowance of claims 1-5 and 11-16 as amended and presented herein.

In the event there remains any impediment to allowance of the claims which could be clarified in a telephonic interview, the Examiner is respectfully requested to initiate such an interview with the undersigned.

Dated this 4th day of April 2007.

Respectfully submitted,

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